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U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Flat Top Mine - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VIII

Subject: **POLREP #3**
Progress
Flat Top Mine
SDN000802781
Ludlow, SD
Latitude: 45.8456780 Longitude: -103.3678530

To:
From: Shun-Ping Chau, OSC
Date: 5/4/2013
Reporting Period: 04/30/2013 to 05/04/2013

1. Introduction

1.1 Background

Site Number:	08RW	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	4/24/2013	**Start Date:**	4/25/2013
Demob Date:		**Completion Date:**	
CERCLIS ID:	SDN000802781	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Time-critical removal.

1.1.2 Site Description

The Flat Top Mine Site is northeast of the town of Ludlow, Harding County, South Dakota. Uranium mining activities occurred around Ludlow in the North Cave Hills, South Cave Hills and Flint Buttes from the late 1950s to 1964 under the General Mining Laws and Public Law 357, which did not require any restoration. The North Cave Hills and South Cave Hills are part of the Custer National Forest and subsequently owned by the United States Forest Service (USFS).

Flat Top Mine is located in the Flint Buttes and is currently on private ranch land. There have been two previous studies by the South Dakota School of Mines and Technology and the Oglala Lakota College around 2006 and 2007, but no clean-up activities have occurred at the Flat Top Mine.

1.1.2.1 Location

The Site is located northeast of the town of Ludlow, in Harding County, South Dakota. Mining activities in the 1950s affected almost 1,000 acres of land in the region. The remnants of Flat Top Mine consist of a water filled pit approximately 1,200 ft by 500 ft. A series of smaller pits, test pits and trenches are currently located within approximately 10,000 acres of undeveloped land used for cattle and sheep ranching but also includes some residential structures.

1.1.2.2 Description of Threat

Uranium, arsenic, vanadium and molybdenum, defined by CERCLA Section 101(14) as hazardous substances, are naturally occurring in the Flint Buttes area. Previous mining activities removed the vegetation and top soil cover in certain areas and left large piles of waste materials and open pits that collect surface water. Many of the waste material piles have been covered with vegetation, but humans, livestock and wild animals are exposed to higher than background levels of these hazardous substances found in water which collects in open pits.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Site assessment work conducted in 2009 and 2011 showed that the highest concentration of contamination occurs at and around an old mine pit that is now the largest pond on the north side of an old highwall, approximately 0.5 miles north of the town of Ludlow. Uranium was detected in soil sediments with concentrations up to 770 parts per million (ppm) and in surface water with concentrations up to 558 micrograms per liter (µg/L). EPA sets the safe drinking water standard for humans at 30 µg/L, and guidelines from several agricultural extension offices recommend a maximum concentration of 200 µg/L for livestock. Other elements of concern with elevated levels in the surface water were arsenic with concentrations ranging from 457 to 536 µg/L, vanadium with concentrations ranging from 73 to 258 µg/L, and molybdenum with concentrations ranging from 894 to 1,730 µg/L. The guidelines for drinking water standard for livestock recommend a maximum arsenic concentration of 200 to 500 µg/L, maximum vanadium concentration of up to100 µg/L, and maximum molybdenum concentration of 300 to 500 µg/L.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

Planned removal action includes treating water from the largest mine pit at the Site, returning the treated water to its original use as livestock drinking water and/or pasture irrigation, backfilling and re-vegetating the pit, and drilling wells to replace the livestock water supply.

2.1.2 Response Actions to Date

In addition to activites described in prevrious reports, during the week of April 29, 2013, approximately 32,000 cubic yards of tailings were moved to backfill the pond and contour the area to enhance drainage.

Personal air monitoring pumps were placed in the cab of each of the two scrapers, one dozer and one grader. Each day results were sent to an analytical laboratory for arsenic, cadmium, copper, lead, molydenum, thorium and uranium. Results from April 29, April 30 and May 1 indicated non-detect. The wind direction and wind speed varied significantly during those three days. On April 29, the wind speed was approximately 35 kt and with gusts up to 60 kt in certain spots of the Site. These results indicated that the water spraying was effective in dust suppression. The enclosed cabs also, to a large degree, protected the equipment operators from exposure. The personal protective equipment (PPE) are therefore downgraded and the equipment operators will no longer be required to wear a respirator.

Perimeter air monitoring pumps were placed at three locations to ensure that no significant amount of fugitive dust from the removal work migrates off-site. Results from April 29 showed non-detect.

Workers in the hot-zone were randomly scanned for radiation several times a week when they came out of the de-con area. All readings were around background (50 to 100 counts per minute) or below.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

ERRS contractors will continue to push tailings to backfill the pond and contour the area.

Personnel and perimeter air monitoring will be conducted on Monday, May 6, 2013. Based on results from the week of April 29, the frequency of air monitoring will be reduced to twice a week unless there is a change in work acitivties.

2.2.1.1 Planned Response Activities

It is anticipated that backfilling with tailings and capping with soil will be completed around May 15. A hydro-seeding subcontractor will re-vegetate the reclaimed area and haul roads.

2.2.1.2 Next Steps

2.2.2 Issues

Sometime between 1730, April 29 and 0700, April 30, 2013, some individuals entered the private property where the removal acitivites are taking place. Some off-road deisel fuel was taken from the fuel tank. A small puddle of fuel was left on the ground. Orange contruction fencing was taken down, and these individuals entered the hot zone, cut a cable, took a Catepillar equipment key and moved the dozer around.

The landowner was contacted, who in turn contacted the Harding County Deputy Sheriff. In order to increase security, the cattle gate at the entrance of the property will be padlocked at the end of each day. (There have already been two signs posted). The fuel tank will be locked as well. The landowner agreed to check on the area when he makes his last round of the day to check on cattle.

As of May 4, 2013, there have not been any trespassers at the Site.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

1 ERRS removal manager, 1 ERRS field accountant, 10 ERRS equipment operators/workers
2 START contractors (1 demobilized on May 3, 2013)
1 EPA OSC

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.